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ABSTRACT

A response to the educator's confusion over how to teach critical thinking skills through writing, the writing process model described in this paper underlines the close ties among cognitive, language, and writing skills. Guiding writing assignments in all content areas, the model involves students in reflection and discussion as they move from prewriting strategies to first draft, revision, proof reading and final paper. Based on this model, a writing assignment would establish a purpose and an audience (other than the teacher/editor) and would use warmup games as part of brainstorming activities; interactive discussions of paper topics and sample essays to help students refine and organize their ideas; and peer and teacher reactions to rough drafts to encourage self-assessment and to help students generate their own thoughtful questions about their writing. (MM)

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THINKING SKILLS IN THE ENGLISH LANGUAGE ARTS

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THINKING SKILLS IN THE ENGLISH LANGUAGE ARTS

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When I was an undergraduate at Loyola University, I was required to take a chemistry course as part of the liberal education program. On the first day of class the old Jesuit professor immediately started lecturing, and in every couple of sentences the word "valence" would appear. I didn't know a valence from an organic compound, so I raised my hand and asked "Father Francis, what is an valence?" He looked at me and frowned, pointing his finger to his forehead. "You must train your mind to THINK!" Before long he was off on "esters," and another student modestly asked what on earth he meant by <u>that</u>. Again came the stern advice, "You must train your mind to THINK!"

After about a week, I decided to drop the course and enroll during the summer with a different teacher, who taught the "cultural course," mainly to nuns, dealing less with valences and more with how refrigerators work and where atomic bombs come from.

Actually, the professor's instinct was right--thinking skills <u>are</u> at the center of all education. But he had a real problem: he realized the importance of cognitive operations but didn't know how to help students develop the ability to think. During my years in English teaching and curriculum development, I became increasingly convinced that my chemistry teacher's problem is built into most school programs and materials.

Terms like "problem solving" and "hypothesizing" are heard most often in mathematics and the sciences; but the fact is that a wide range of cognitive

skills is required in all school subjects. History involves understanding sequence and cause/effect relationships. Literature involves analogical thinking and deduction. Biology involves mental processes like categorization and inductive and deductive reasoning. All subjects involve definitions that in turn include classification and specification, comparison and contrast. Teachers routinely ask students to use a whole arsenal of thinking skills, but no one has specific responsibility for training students those skills.

Ideally, training and thinking processes would be woven into subject-area study. But despite a lot of excitement in the 60s over Brunerian spirals and the current widespread interest in thought processes underlying mathematical and scientific reasoning, most school programs and materials have remained relentlessly disciplined-centered. Students must "do" the thinking that is embedded in the curriculum without being trained in either the general strategies or the specific thinking skills involved.

Many theorists and practitioners in English education have concluded that the English/language arts teacher, pre-K through college, should accept major (though not of course exclusive) responsibility for teaching thinking skills. The rationale is rooted in the relationships between thinking and language as established by Piaget, Vygotsky, Luria, and others. Additionally, many aspects of reading and writing are clearly linked to thinking skills, as evidenced by the National Assessment report (1981) on Reading, Thinking, and Writing. Student writing samples were found to be lacking in the cognitive superstructures that inform clear writing: organization of ideas, continuity, cohesion, and the like.

Many aspects of thinking, expression, and communication are not closely related to the verbal arts. Specialists in visual media (Arnhein, 1974) and mathematics (Post, 1980), for example, have argued rightly for emphasis on the nonlinguistic aspects of their disciplines. But as John Carroll (1974, p. 156) notes, "the various forms of pictorial expression are almost always accompanied by language and often require language to make them intelligible." Umberto Eco (1976, p. 174) agrees that language is "the most powerful semiotic device that man has invented," and Piaget (1971) notes that "language is but one among . . . many aspects of the semiotic functions, even though it is in most instances the most important." Certainly language is used by musicians and visual artists in articulating their intentions and describing their techniques. And critical analysis of the elements in any nonlinguistic work involves language, as does description of the responses that the work evokes in us.

Efforts at Cognitive-Based Language Arts Materials

It follows that one major function of teachers of all subjects is to nurture the student's linguistic shaping of the mental stuff that constitutes our store of concepts, affects, and experiences (Suhor, 1982). English/language arts teachers, moreover, should give special attention to the ordering of experience through language. Unfortunately, language arts specialists who have taken this function seriously have often been unsuccessful in translating theory and research into practice. The most comprehensive theorist, James Moffett (1968b) wrote two influential teacher training texts (Moffett, 1968a; Moffett and Wagner, 1976) which describe a Piaget-based curriculum, K-13. Moffett's ambitious models took into account insights from learning theory, psycholinguistics, sociolinguistics, brain research, and semiotics. But his

Houghton-Mifflin Interaction (1973) series for classroom use was a commercial failure because most teachers lacked the background to orchestrate such complex, if liberating, materials.

The Harper-Row elementary New Directions in English series (Andersen, 1973) devoted the first two chapters of each text to teaching thinking skills--from simple sequencing to understanding concepts like a continuum. However, most teachers rejected the thinking skills materials and turned quickly to the sections on grammar, which--characteristic of virtually all formal grammar texts--demand application of high order cognitive skills without offering systematic training in such skills. A similar fate was suffered by Ginn's 7-12 literature series, Responding. Alan Purves (1973) and a team of writers applied research findings in student response to literature, only to find that adoption committees favored conventional discipline-centered anthologies over instruction rooted in student learning patterns.

A few publishers and curriculum developers have made more modest forays into the teaching of thinking skills. "Critical thinking" is a phrase that has long been applied to a variety of secondary and college level programs and texts. Commercial materials (often highly imaginative products designed for elective courses or unit study) have usually focused on applied general semantics--i.e., critical analysis of propaganda in advertising and politics (as in Littell's Coping with Television, 1973; and Coping with Mass Media, 1972). Other texts have dealt with rudimentary logic (Annis, 1974) and persuasion (Heintz, 1970).

Many recent materials, unspecified in terms of subject matter area, have

stressed exercises dealing with particular thinking skills. Midwest Publications has made a specialty of thinking skills, verbal and nonverbal, with Anita Harandek's (1976, 1977, 1979) various series--booklets with titles like Analogies, Cause and Effect, Spatial Perception, Conservation, Figure Patterns, Inferences, Following Directions, and--of course--Critical Thinking. Along similar lines, Innovative Sciences has produced the Think series (Glade, 1982), Samson's (1975) Thinking Skills, Whimbey's (1982) Analytical Reading & Reasoning; and Whimbey and Lochhead's (1982) Problem-Solving and Comprehension is a secondary-college text from Franklin Institute Press.

Such materials often seem dreadfully isolated and piecemeal; some provide mere thought-twisters and puzzles rather than serving broad educational goals. But despite such quirks, they represent a legitimate scholarly and pedagogical point of view. As Lockhead says in Cognitive Process Instruction (Whimbey and Clement, 1972, p. 2), "It is becoming possible to isolate specific cognitive skills and to design instructional materials appropriate for each skill."*

A wider view of cognitive instruction has emerged at the college level with Piagetian programs like Karl Taylor's interdisciplinary DOORS curriculum at Illinois Central College and the ADAPT program at Nebraska. Theoretical inroads are being made by Wayne Booth and Joseph Williams at the University of Chicago, where annual conferences are held each summer on Writing and Higher Order Reasoning. And the recent emphasis on the process of writing in English language arts has focused new attention on interrelationships among thinking, speaking, reading and writing.

*Although I have found no taxonomy of cognitive skills that is sufficient for pedagogical purposes, the general framework I find most useful includes "isolatable" skills like sequencing, analogizing, and categorizing as elements in global abilities such as problem-solving and critical thinking. The global qualities strike me as most important; but unfortunately they have taken on unnumerable broad connotations over the years, or they have been refined and reified in utterly misleading ways. See, e.g., Flood and Lapp (1978) on the myth of "inferencing" and Medawar (1967) on hypothesizing, induction, and deduction.

Influence of Process Models

Various models of the composing process have been proposed and adapted to classroom instruction (e.g., Hayes and Flower, 1980; Koch and Brazil, 1978). Virtually all call for prewriting activities that include richly interactive classroom discussion. Some call for brainstorming and other activities aimed directly at evoking particular thinking processes that relate to the class discussion and writing assignment.

My own model of the writing process (See Figure 1) attempts a high degree of interrelation among cognitive/language/writing skills. It was the basis for the Scholastic Composition text series, Grades 7-11 (Suhor, et al. 1980). A similar model underlies a composition text series for Allyn & Bacon (Olson, et al., 1981). I will explicate the model with a simple example: an assignment on writing an essay of comparison and contrast, usable with students in grades 7-12. Admittedly, both the model and its incarnations in classroom activities are imperfect reflections of complex research and theory. But the theory-into-practice game is an imperfect art that must be played, lest we continue to perpetuate tried-and-untrue, atheoretical materials. (For a fuller explanation of the model, contrasted with traditional and mastery models, see Suhor, in press.)

Briefly, the comparison/contrast essay is both a pervasive Purpose and the anticipated Product of this assignment--although the process elements, as will be seen, are in many ways as important as the product. The product should have an Audience--a real audience beyond the teacher as wielder of the red pencil, consistent with Britton's (1975) and Macrorie's (1976)

THE WRITING PROCESS

P	PRE-WRITING	DRAFTING	REVISING	PROOFREADING	PRODUCT	A
U	-BRAINSTORMING	-with the benefit of previous thought, talk, notes, activities	-WITH FEEDBACK-- peer reaction, teacher reaction, self-assessment	-MECHANICS, SPELLING, etc.		U
R	-DISCUSSION (with peers and teachers)-- refining and organizing ideas					D
P						I
O						E
S	-NOTE-TAKING during the above					N
E	-SAMPLE ESSAYS					C
						E

insistence on actual communication goals rather than test-oriented "dummy runs" in school writing.

A variety of brainstorming warmups in gamelike form can be used to stimulate comparison/contrast thinking.* One simple, enjoyable sequence involves a two-step game that begins as the teacher writes on the chalkboard:

How is a _____ like a _____?

How are they different?

Step 1: The teacher provides five to eight pairs of nouns, beginning with simple word pairs (like oak tree/rabbit; tricycle/jet plane) then goes on to more complex ones (including humorous items like zoo/schoolyard; TV ad/soap opera) and perhaps others of a more abstract nature (jogging/studying; friendship/ love), depending on the students' interests and levels of sophistication.

Step 2: Each student is asked to write a single noun on a slip of paper--anything from "hamburger" to "generosity." The papers are put into a grab-bag and one student picks out two slips at random. The comparison/contrast questions are applied to the randomly selected pairs, thereby encouraging students to use imagination and ingenuity in making comparison/contrast connections between odd pairings like "circus" and "sausage pizza."

From the warmup games, the students move to discussion of topics that interest them--again, with comparisons and contrasts built into the process. The goal here is to provide a field of human interaction upon which cognitive skills can be brought to play. The discussion must be truly interactive rather than baldly recitational or rigidly Socratic. Both the theory and the methodology for truly mind-stretching classroom interaction are now available. (See Stanford, 1977; Stanford and Roark, 1974, Moffett and Wagner, 1976).

*And other kinds of thinking as well. See Scholastic Composition, Level 5 (Suhor, 1980) for warmup games specifically linked to writings of observation/description (Ch. 1); argumentation (Chs. 2,6); categorization/specification (Ch. 5); discrimination/evaluation (Ch. 7); prediction of consequences (Ch. 10); deductive analysis (Ch. 11); and narration (Chs. 13,15).

What remains is for teachers to become skilled and fluid in conducting interactive discussion and in getting students to interiorize its dynamic so they can engage in cognitively sophisticated conversations in small groups.

Again, topics for comparison/contrast discussion will vary according to students' interests and abilities. Some might compare two cities, television shows, football teams, popular singers, newspaper ads, etc.; others might compare D.H. Lawrence's and Emily Dickinson's poems about snakes, or Joyce Kilmer's and Edward Field's poems about trees. Students take notes during discussion to provide a store of ideas for possible development in their essays.

The next step in the Writing Process Model involves reading and discussion of sample essays so students can see how others have orchestrated comparisons and contrasts in written form. The samples chosen should be psychologically accessible to the student population. Only a handful of students can benefit from remote materials like Cicero's comparison of the soldier and the statesman. Most, though, will perceive the organizing principles of comparison and contrast that underlie good contemporary writing samples (e.g., Annie Dillard, Tom Wolfe) or papers written by other students.

Since students have participated in discussion and taken notes, they should have on hand a body of strategies and ideas from which they can fashion a first draft. Students are encouraged to see the draft not as a magnum opus but as an initial attempt at forming their ideas in writing. They know that refinement and revision will follow, based on feedback from the teacher, the entire class, or small groups. For some students, further

discussion with the teacher or with other students about topics and approaches might be needed before beginning the draft. (This is but one legitimate variation on the process approach. The model provides guidelines, not a formula.)

In the revision stage, the cognitive tasks embedded in the assignment are further refined as students give each other advice on how to improve their essays. Students inexperienced in small group work will initially need clear guidance in the form of specific points to be discussed about the comparisons and contrasts in each other's papers--points which have been raised earlier of course, in the analysis of sample essays. If students falter in peer groups, a teacher-led discussion of selected papers with the entire class may be needed to advance the revision stage. A process-oriented teacher, though, maintains the instructional goal of moving the students beyond the Socratic mode (in which they answer thoughtfully-cast questions) and towards the interactive mode (in which they learn to raise such questions themselves). Menon unwittingly exposed the weakness of the Socratic method when he said, "You seem to argue well, Socrates. I don't know how you do it."

Some Implications for General Instruction

Note that only the semi-final stage, the proofreading of the papers for spelling and mechanical excellence, falls solely within the traditional realm of the English teacher. The Process Model, although devised by English language arts specialists, is a way of evoking thinking, discussion, and writing in any classroom. Space does not allow examples from other disciplines here. But ideas developed by Nancy Martin, et al. (1976), Christopher

Thaiss (in press), and others demonstrate that the ordering power of language operates effectively across subject matter areas. Simply stated, the integration of thinking, speaking, and writing is a way of learning, not a diverting overlay on more direct modes of instruction.

The current interest in writing across the curriculum, in fact, makes no sense except in the context of language across the curriculum. And that, in turn, means attention to the language-maker as a selecter and shaper of the blooming, buzzing universe of human experience. In any expansive view of curriculum, then, thinking and oral and written language are an essential province of every teacher, albeit with somewhat different emphases in each subject area.

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